



Grade 6 Science ACHIEVEMENT TEST

June 1986

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GRADE 6 SCIENCE ACHIEVEMENT TEST

DIRECTIONS

1. There are 60 multiple-choice questions on this test.
2. You will have 1 hour to complete this test.
3. Please read each question carefully.
4. Choose the answer you think is correct.
5. Use ONLY an HB pencil to mark your answers.
6. Mark the answer by filling in the circle under the correct answer on the answer sheet.
7. Mark only one answer for each question. If you change an answer, please erase your first mark completely.
8. Be sure that the number beside the response circles on the answer sheet matches the number of the question you are doing.

Example

Answer Sheet

1. This test is for the subject area of

- A. Science
- B. Language
- C. Mathematics
- D. Physical Education

A B C D

1. ● ○ ○ ○

DIRECTIONS

1. There are 50 multiple-choice questions on this test.
2. You will have 1 hour to complete this test.
3. Please read each question carefully.
4. Choose the answer you think is correct.
5. The ONLY way to get points is mark your answer.
6. Mark the answer by filling in the circle next to the correct answer. Do not write.
7. Mark only one answer for each question. If you change your answer, please erase your first mark completely.
8. At the end of the test, bubble in the response circle for answer sheet mark has the number of the question you are doing.

Answer Sheet

Example

A B C D

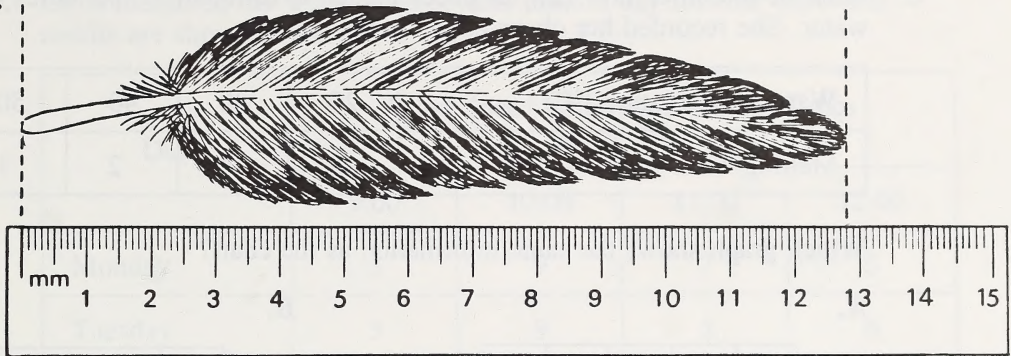
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1. This test is for the subject area of

- A. Science
- B. Language
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- D. Physical Education

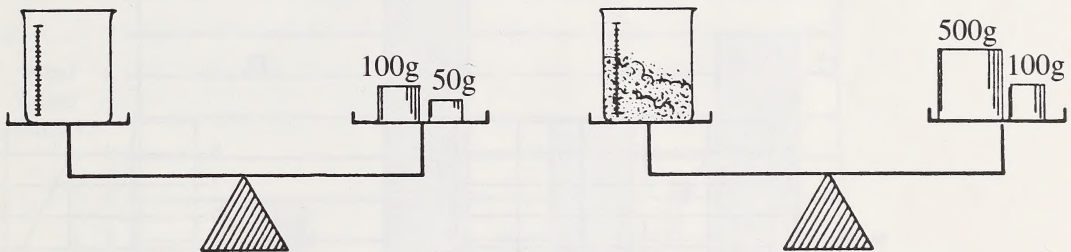
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1.



The length of the feather is

- A. 123 mm
 - B. 127 mm
 - C. 128 mm
 - D. 129 mm
2. John measured the mass of a beaker. He then added some powder to the beaker and measured the mass of the beaker and powder together.



What was the mass of the POWDER?

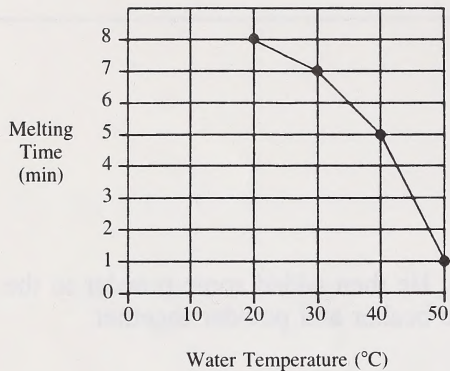
- A. 150 g
- B. 450 g
- C. 600 g
- D. 750 g

3. Suzanne measured how fast ice cubes melted in different temperatures of water. She recorded her observations in the chart.

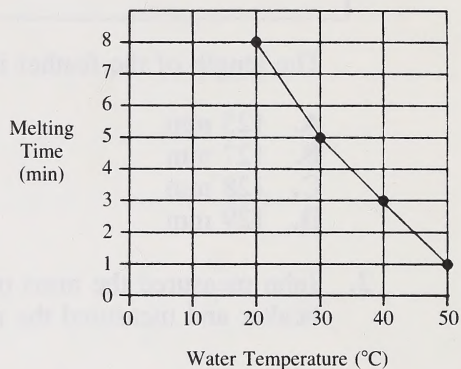
Water Temperature ($^{\circ}\text{C}$)	20	30	40	50
Melting Time (min)	8	4	2	1

Which graph shows the same information as the chart?

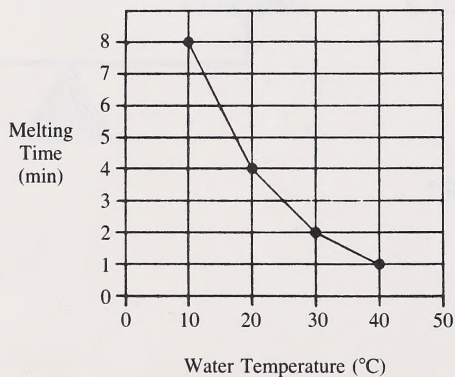
A.



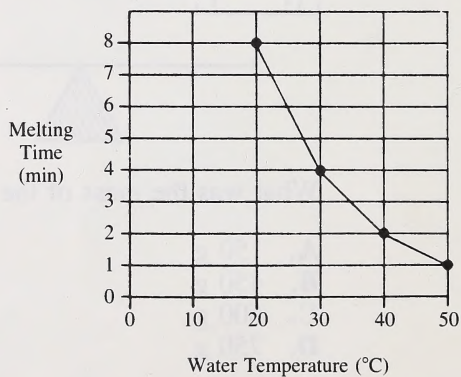
B.



C.



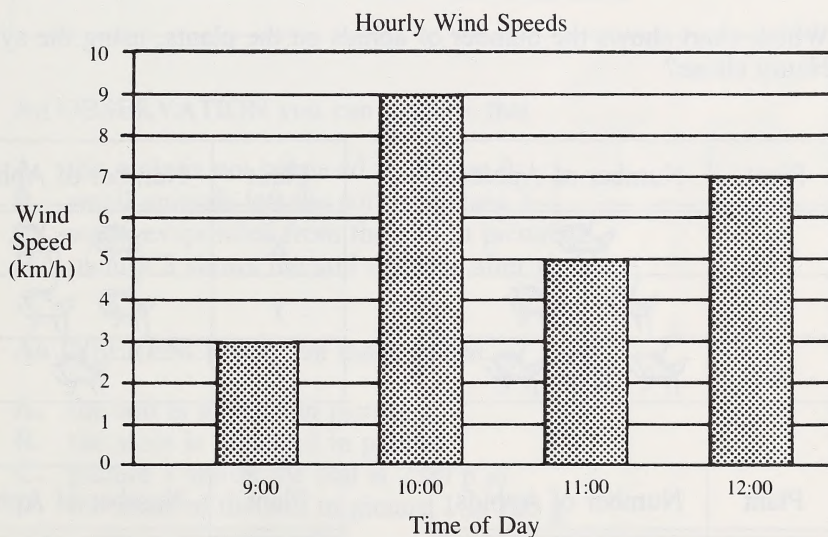
D.



4. Clive measured the wind speed several times a day for four days. His results are shown in the chart.

Day	Wind Speed (km/h) at Different Times of the Day			
	9:00	10:00	11:00	12:00
Monday	3	9	7	5
Tuesday	3	9	5	6
Wednesday	3	9	5	7
Thursday	3	7	5	7

He made a graph of the wind speeds for one of the days.




For which day did Clive make the graph?


- A. Monday
- B. Tuesday
- C. Wednesday
- D. Thursday


5. Henry's chart shows the number of aphids on some plants.

Plant	Number of Aphids
X	32
Y	58
Z	18

He wanted to show this information by using the following symbols:




1 - 25 aphids = 

26 - 50 aphids = 




51 - 75 aphids = 

Which chart shows the number of aphids on the plants, using the symbols Henry chose?




A.

Plant	Number of Aphids
X	
Y	
Z	




B.

Plant	Number of Aphids
X	
Y	
Z	

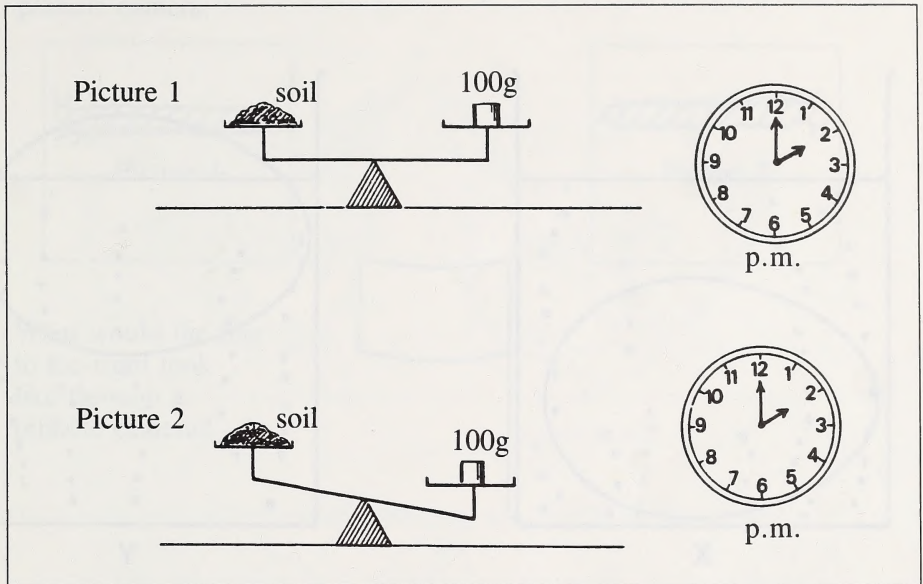
C.

Plant	Number of Aphids
X	
Y	
Z	

D.

Plant	Number of Aphids
X	
Y	
Z	

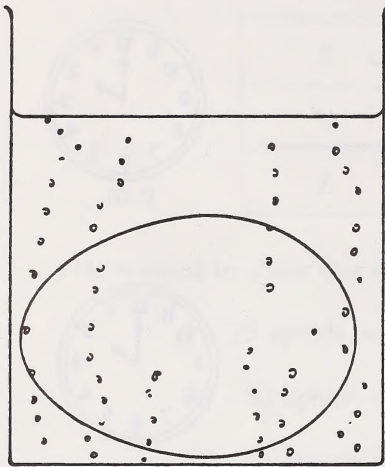
Use the following pictures to answer questions 6 and 7.



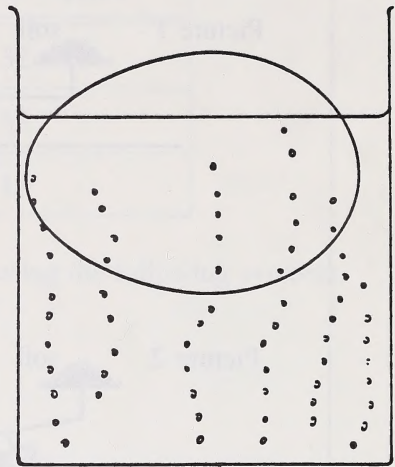
6. An OBSERVATION you can make is that
- A. the scale is not balanced in picture 2
 - B. small animals left the soil in picture 2
 - C. water evaporated from the soil in picture 2
 - D. picture 2 shows the soil one day after picture 1

7. An INFERENCE you can make is that
- A. the soil is moister in picture 1
 - B. the scale is balanced in picture 1
 - C. picture 1 shows the soil at 2:00 p.m.
 - D. the mass of the soil in picture 1 is 100 g
-

8. Mary placed an egg in each beaker.



X

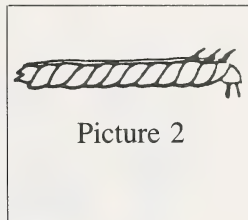
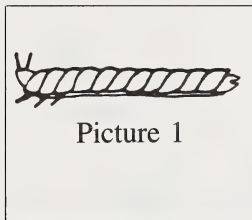


Y

An OBSERVATION to be made from the pictures is that

- A. the egg in beaker Y is floating
- B. the liquid in beaker Y is cooler
- C. there is a salt solution in beaker Y
- D. the egg in beaker Y has a smaller mass

9. Picture 2 shows what the mealworm in picture 1 looks like through a pinhole camera.



What would the flag to the right look like through a pinhole camera?



A.



B.



C.



D.



10. Cat 1 is in a dark room and cat 2 is in a bright room.



1 (Dark room)

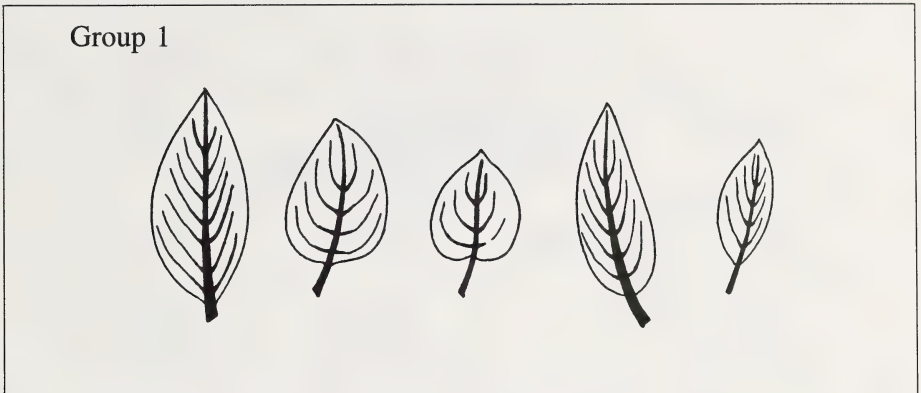


2 (Bright room)

The BEST INFERENCE you can make from the information and pictures is that

- A. cats are most active at night
- B. cats can't see well in bright light
- C. cats use their whiskers more when they can't see well
- D. cats' pupils get bigger to let in more light when it is dark

11. Cathy sorted leaves into two groups.



The leaves within each group have the same

- A. length
- B. type of edges
- C. number of veins
- D. thickness of stem

12. The chart shows characteristics of four groups of animals.

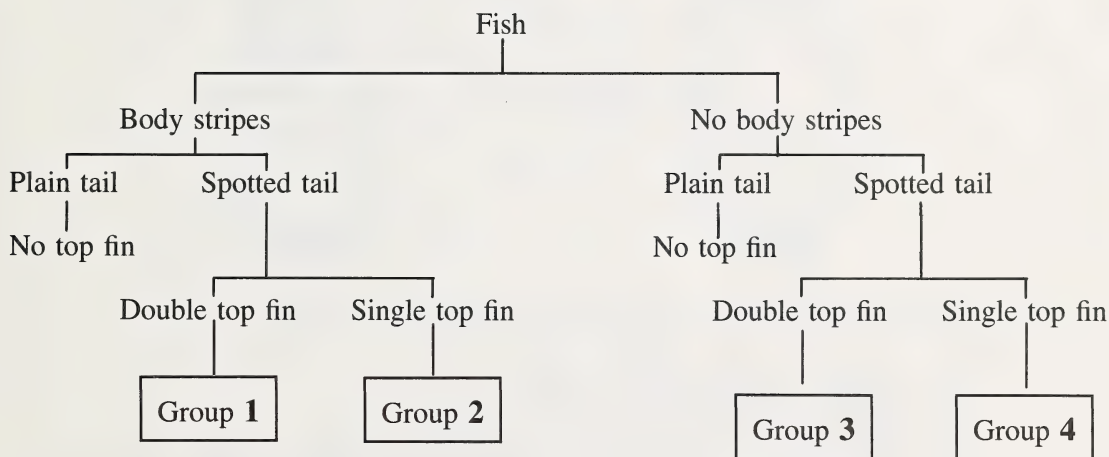
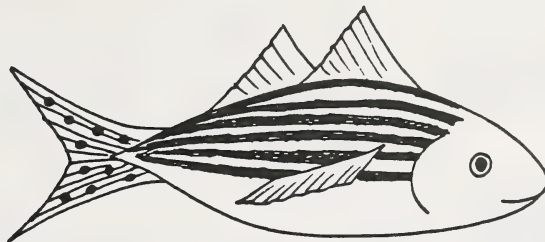
	Group 1	Group 2	Group 3	Group 4
Number of antennae	2 pairs	1 pair	1 pair	2 pairs
Number of wings	none	none	none	2 pairs
Number of separate body parts	2	head and 15 to 170 body parts	head and 25 to 100 body parts	3
Number of legs	5 to 10 pairs	1 pair on each body part	2 pairs on each body part	3 pairs

To which group does this animal belong?

- A. 1
- B. 2
- C. 3
- D. 4



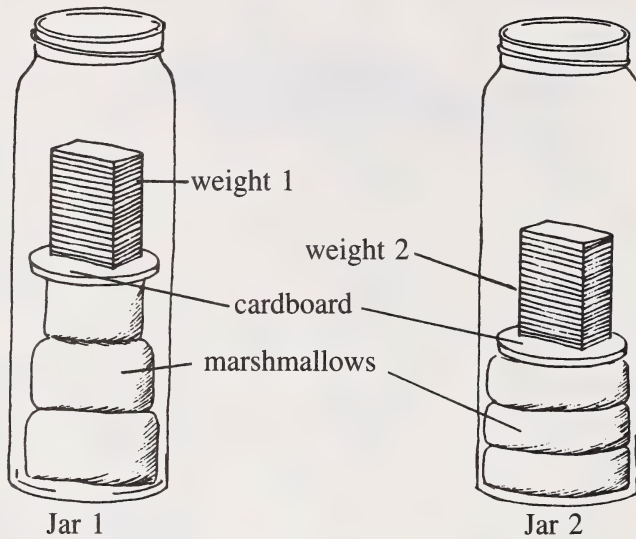
13. Look at the fish and the chart below it.



To which group in the chart does the fish belong?

- A. Group 1
- B. Group 2
- C. Group 3
- D. Group 4

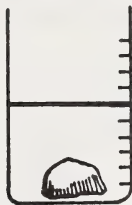
14. Angie set up this model to show how ice is pressed down in a glacier.



An INFERENCE you can make from the pictures is that

- A. weight 1 is lighter than weight 2
- B. there are three marshmallows in each jar
- C. the marshmallows in jar 1 have different shapes
- D. the stack of marshmallows in jar 1 is higher than the stack in jar 2

15. This picture shows the level of water in a beaker when a rock is added.

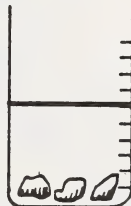


Which picture shows how high the water will be when the rock is broken into three pieces?

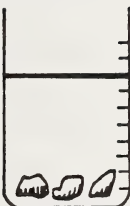
A.



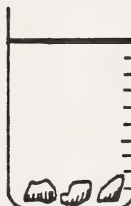
B.



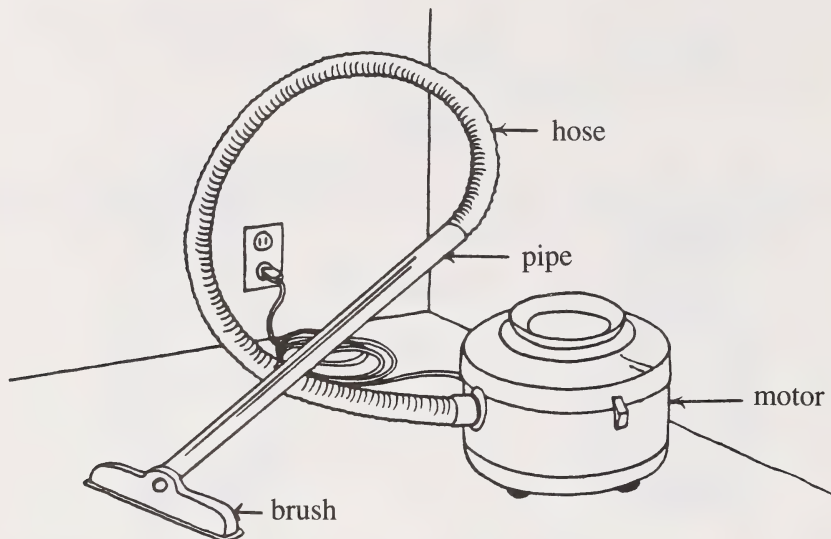
C.



D.



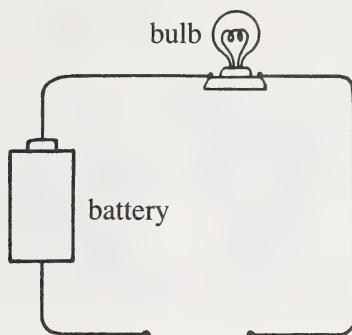
16. Jack vacuumed up a sock. The sock became stuck and the vacuum cleaner wouldn't work. When Jack removed the pipe and attached the hose directly to the brush, the vacuum cleaner worked again.



The sock probably became stuck in the

- A. pipe
- B. hose
- C. motor
- D. brush

17. Jerry set up this circuit. He laid a variety of materials across the gap in the wire to see if the bulb would light. He recorded his findings in the chart.

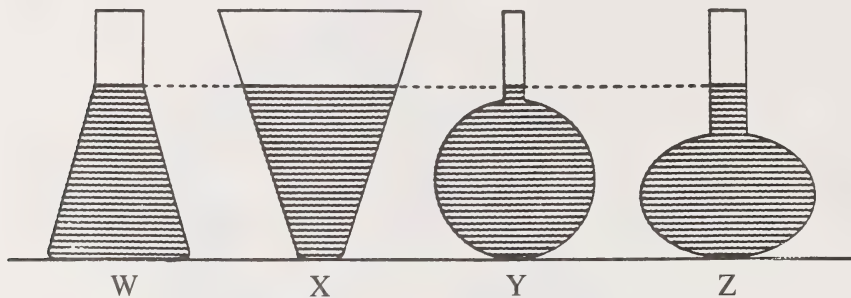


Object	Does the Bulb Light?
Paper clip	Yes
Scissors	Yes
Toothpick	No
Pop can	Yes
Pencil	No
Straw	No
Salt solution on a string	Yes

Which **CONCLUSION** does this information support?

- A. Only metals conduct electricity.
- B. Rubber does not conduct electricity.
- C. Not all materials conduct electricity.
- D. A circuit is complete, even with a gap.

18. A litre of water at 20°C is poured into each of these containers.

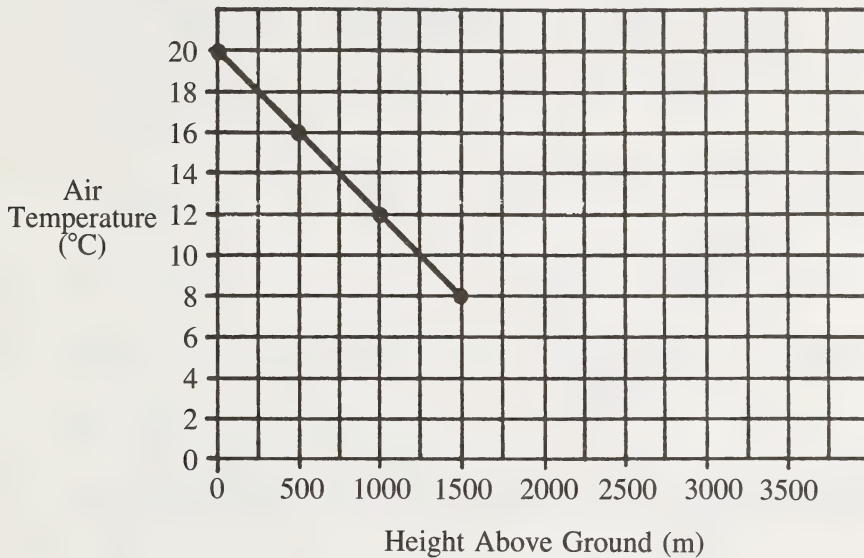


When the water in each container is heated to 65°C , the water level will be highest in container

- A. W
- B. X
- C. Y
- D. Z

19. The graph shows that temperature changes as the height above the ground increases.

Air Temperature at Different Altitudes



At what height above the ground would you expect the temperature to be 0°C?

- A. 2000 m
- B. 2500 m
- C. 3000 m
- D. 3500 m

20. Sandy had two different rocks and a nail.



Rock 1

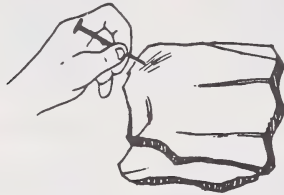


Rock 2



Nail

She made a scratch mark on rock 1 with a nail.



She could not make a scratch mark on rock 2 with the nail.



The objects from softest to hardest are

- A. rock 1, nail, rock 2
- B. rock 2, nail, rock 1
- C. rock 2, rock 1, nail
- D. nail, rock 1, rock 2

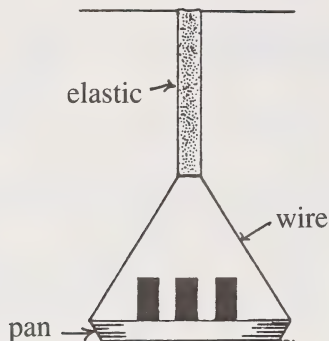
- 21.** The chart compares the size of four plants 10 days after planting.

Kind of Plant	Number of Leaves	Height of Plant (cm)
Green pea	6	15
Yellow-eye bean	2	5
Lima bean	4	4
Navy bean	2	10

Which **CONCLUSION** does the information in the chart support?

- A.** The shortest plant has the fewest leaves.
- B.** The lima bean is taller than the navy bean.
- C.** Each bean plant has fewer leaves than the pea plant.
- D.** The yellow-eye bean and the navy bean are the same height.

22. This is an elastic scale.



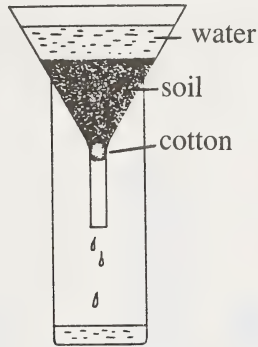
Joshua measured the distance the elastic stretched when different numbers of identical objects were placed in the pan.

Number of objects	2	4	5	7
Distance elastic stretched (cm)	2.0	4.0	5.5	7.9

Which is the BEST PREDICTION that can be made from the information in the chart?

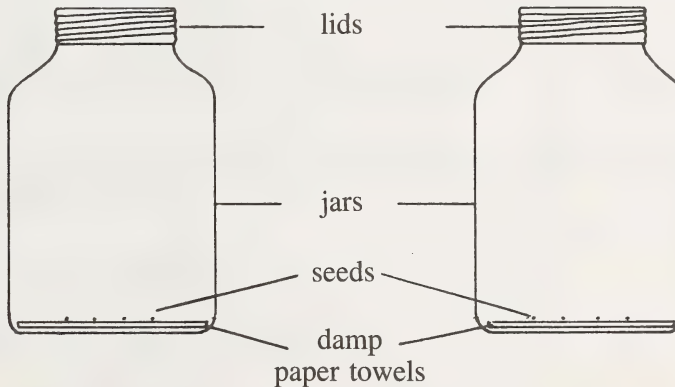
- A. Three objects will stretch the elastic 3 cm.
- B. Six objects will stretch the elastic 6 cm.
- C. Eight objects will stretch the elastic 8 cm.
- D. Ten objects will stretch the elastic 10 cm.

23. Fay set up an activity to see which type of soil holds the most water. She poured water on the soil and measured how much water dripped through.



What variable should she change in each test to answer her question?

- A. Type of soil
 - B. Amount of soil
 - C. Volume of water on the soil
 - D. Volume of water that drips into the jar
24. Sue wanted to find out what variables affect the growth of radish seedlings. She set up two identical jars.



Sue placed one jar in a dark refrigerator and one near a sunny window. She measured the length of the seedlings after two weeks. What variables may have caused a difference in growth between the radishes in the two jars?

- A. Light and temperature
- B. Moisture and size of jar
- C. Moisture and number of seeds
- D. Light and length of growing time

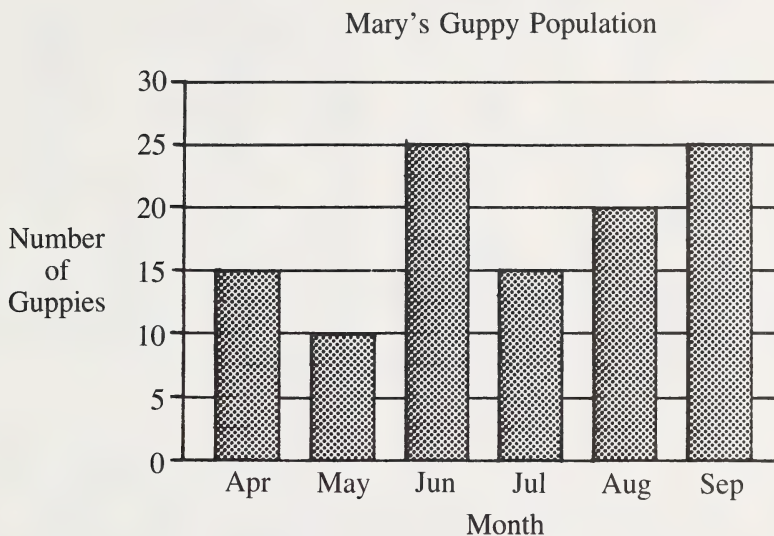
25. The chart shows the average heart rate of children of different ages when they are resting.

Children	Heartbeats per Minute
6-month-old girls	120
2-year-old boys	110
5-year-old boys	100
10-year-old girls	90
10-year-old boys	90

The correct INFERENCE from the chart is that the heart rate is fastest in

- A. boys
- B. girls
- C. older children
- D. younger children

26. The graph shows that the number of guppies in Mary's aquarium changed over several months.



The graph shows that the number of guppies

- A. went down only in May
 - B. was lower in April than in July
 - C. was higher in June than in August
 - D. increased the most from August to September
27. Anita wanted to know if long toboggans slide faster than short ones. She identified these variables:

- 1. length of the toboggan
- 2. mass of the rider
- 3. speed of the toboggan
- 4. steepness of the hill

Which variables should she keep the same?

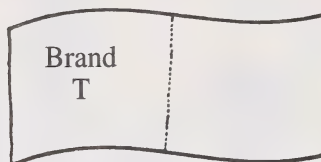
- A. 1 and 2
- B. 1 and 4
- C. 2 and 3
- D. 2 and 4

28. Martin thinks that Brand S paper towels absorb more water than Brand T paper towels. Which set of paper towels should he use to test his idea?

A.



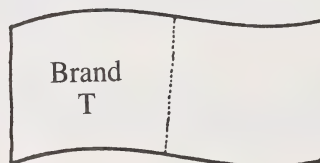
B.



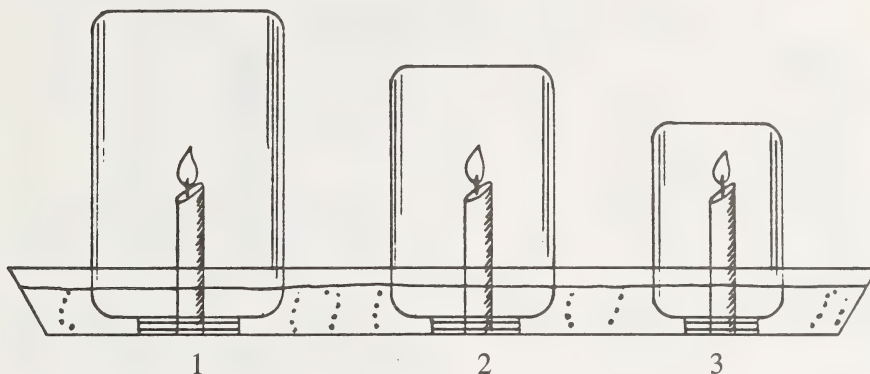
C.



D.



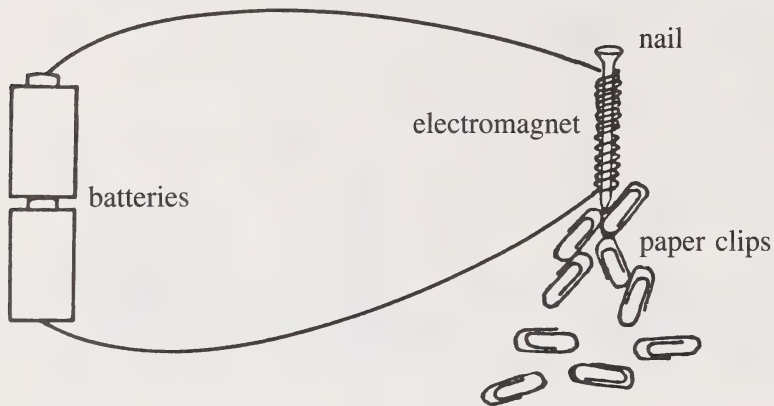
29. Three students each place a jar over identical lighted candles at the same time.



Which PREDICTION will most likely happen?

- A. All the flames will go out right away.
- B. The flames will go out in this order: 1, 2, 3.
- C. The flames will go out in this order: 3, 2, 1.
- D. The candles will burn awhile, and then all the flames will go out at the same time.

30. Alice made a HYPOTHESIS that the strength of an electromagnet depends on the number of batteries in the circuit.

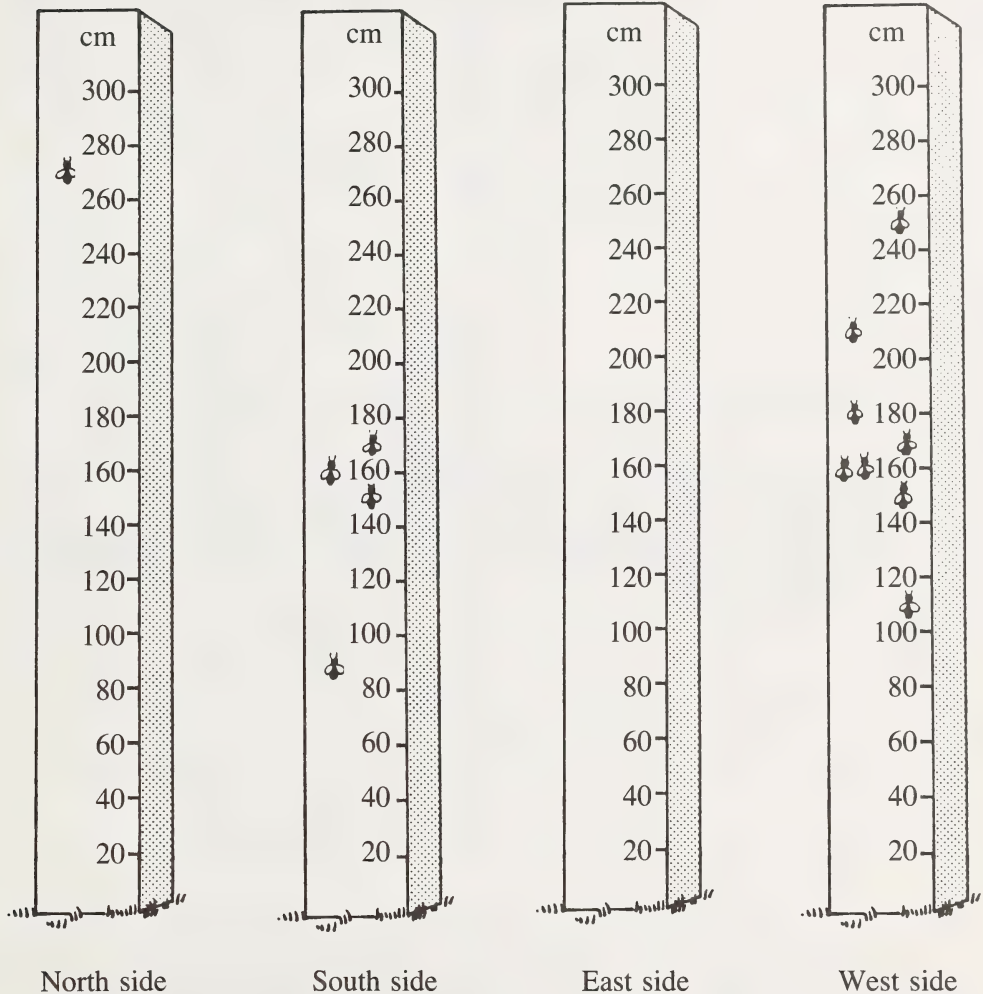


To see if her HYPOTHESIS is correct, which variable should Alice change in each test?

- A. Size of the nail
- B. Number of batteries
- C. Number of paper clips
- D. Number of coils of wire

31. Carol used a sticky square post to study where insects fly. The diagrams show where insects became stuck on the four sides of the post.

The Four Sides of Carol's Post

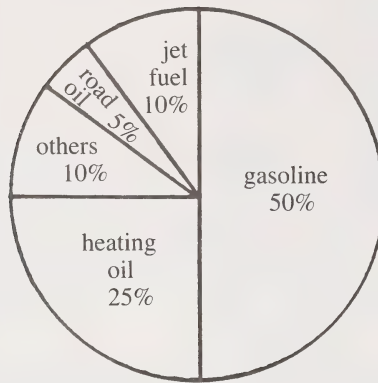


The diagrams show that

- A. most insects came from the south
- B. no insects flew higher than 260 cm
- C. most insects flew at a height of about 160 cm
- D. fewer insects came from the north than from the east

32. Crude oil can be refined into several products. The graph below shows the percentage of each product that is obtained.

Products Made from Crude Oil

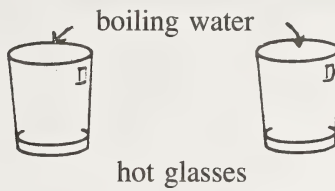


The BEST CONCLUSION you can make from this graph is that

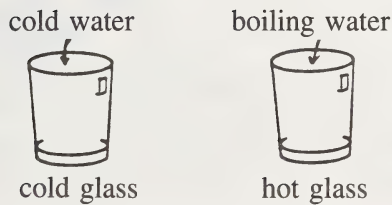
- A. there is a shortage of road oil in our country
- B. products made from crude oil are renewable resources
- C. about twice as much heating oil as gasoline is made from crude oil
- D. more than half of the products made from crude oil are used in transportation

33. When John poured boiling water into a glass, the glass broke. He thought that the great difference in temperature between the water and the glass caused the glass to break. Which of the following would be the BEST test of his HYPOTHESIS?

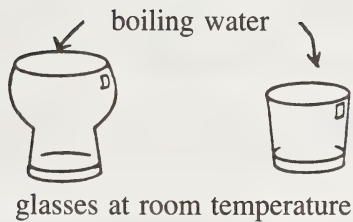
A.



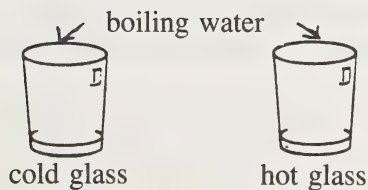
B.



C.

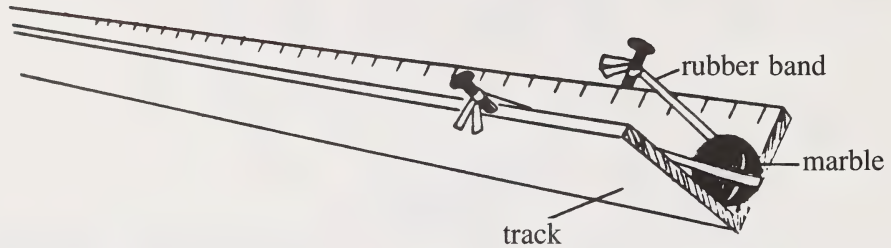


D.



Use the following information to answer questions 34 and 35.

Bob made a rubber-band slingshot on a level track. He pulled the rubber band back 2 cm, released a marble, and then measured how far the marble travelled along the track. He repeated the experiment with pulls of 3, 4, and 5 cm.



34. Which variable was kept the same?

- A. Length of the pulls
- B. Surface of the track
- C. Distance the marble travelled
- D. Speed at which the marble travelled

35. Which HYPOTHESIS could be tested by this experiment?

- A. The distance the marble travels depends on the slant of the track.
 - B. The distance the marble travels depends on the length of the pull.
 - C. The distance the marble travels depends on the surface of the track.
 - D. The distance the rubber band is pulled back depends on the thickness of the band.
-

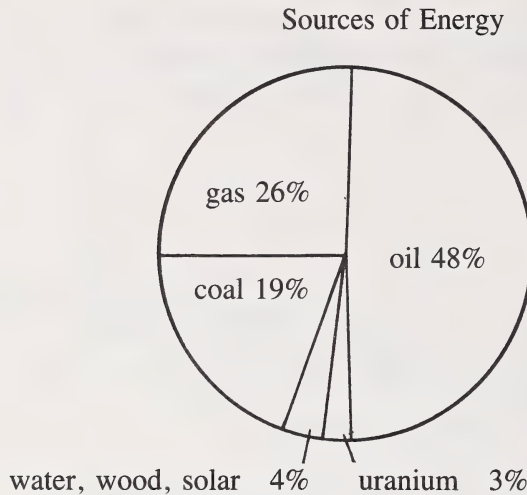
- 36.** John is doing an experiment with grasshoppers. He is using this chart to record his observations.

Air Temperature (°C)	Number of Jumps in Five Minutes
10	
20	
30	
40	

What HYPOTHESIS is John likely testing?

- A. As the temperature rises grasshoppers jump higher.
 - B. When grasshoppers jump a lot they are harder to catch.
 - C. As the temperature rises grasshoppers jump more often.
 - D. When grasshoppers jump a lot the air temperature rises.
- 37.** Which is an OPERATIONAL DEFINITION?
- A. A bicycle may be used for exercise.
 - B. A bicycle is a vehicle with two wheels.
 - C. A bicycle is a two-wheeled vehicle that rolls forward when its pedals are turned.
 - D. A bicycle is an ancient form of transportation that has been improved over the years.

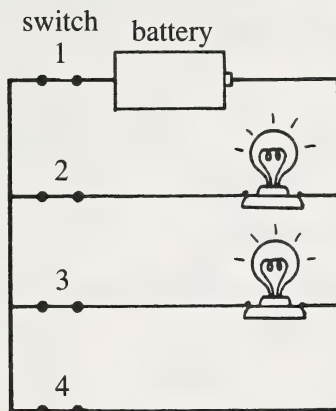
38. The graph shows the energy sources of an imaginary country.



How much energy comes from renewable resources?

- A. 3%
 - B. 4%
 - C. 7%
 - D. 93%
39. You will use less energy to heat a house in winter if you
- A. repair leaking taps
 - B. insulate the roof and the walls
 - C. close the drapes on sunny days
 - D. switch off the lights when you leave a room
40. One advantage of solar energy is that it is
- A. non-polluting
 - B. non-renewable
 - C. efficient in any climate
 - D. available at all times of the day

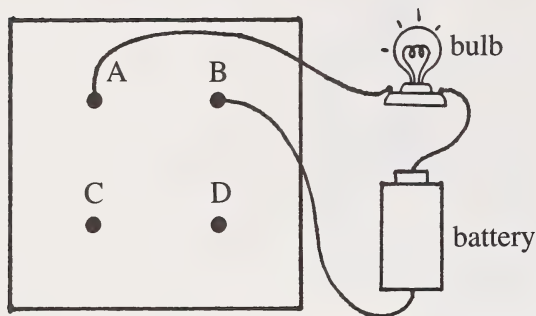
41.



To turn off both bulbs, you would open switch

- A. 1
- B. 2
- C. 3
- D. 4

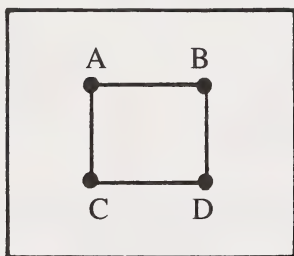
42. This is a hidden-circuit board. Some of the contact points are connected on the back of the board. The chart shows whether the bulb lights when two contact points are touched by the wires.



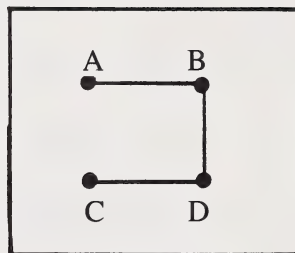
Contact Points	Light
A-B	yes
A-C	yes
A-D	no
B-C	yes
B-D	no
C-D	no

Which circuit board fits these observations?

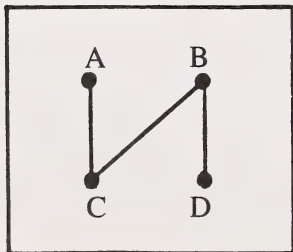
A.



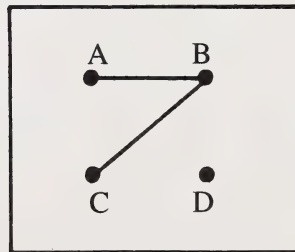
B.



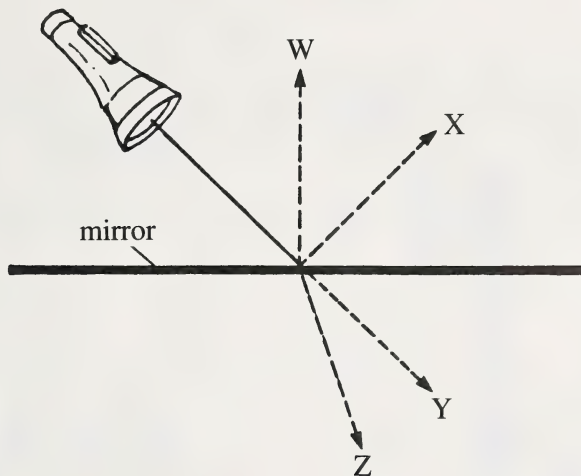
C.



D.



43. In the picture below, a beam of light is shone at a mirror.

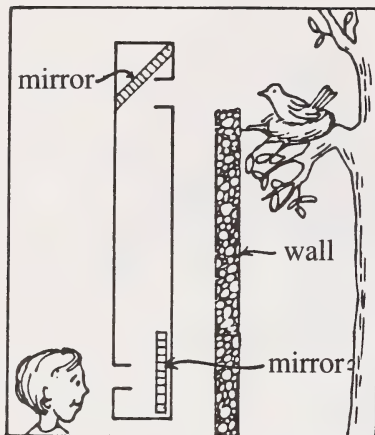


Which letter shows the path that the light takes?

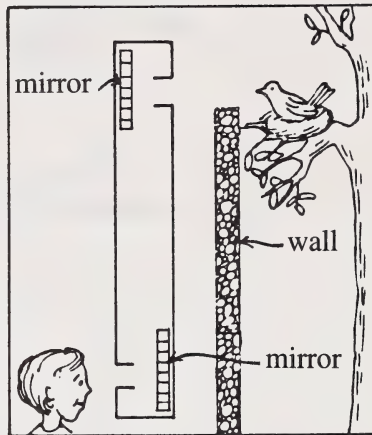
- A. W
- B. X
- C. Y
- D. Z

44. Which periscope would allow the boy to look over the wall and see the bird?

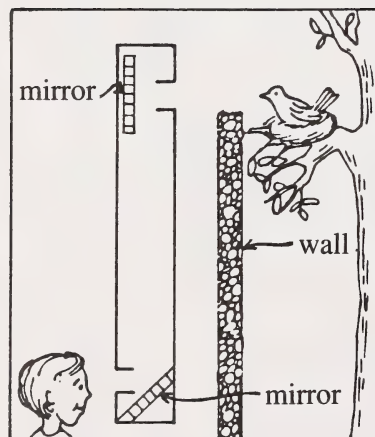
A.



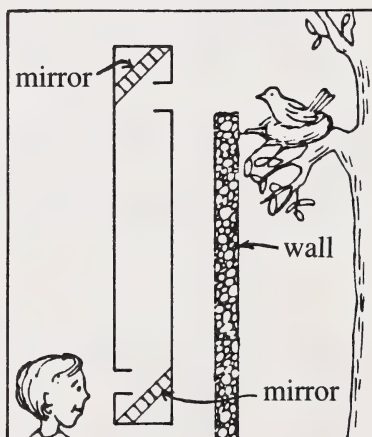
B.



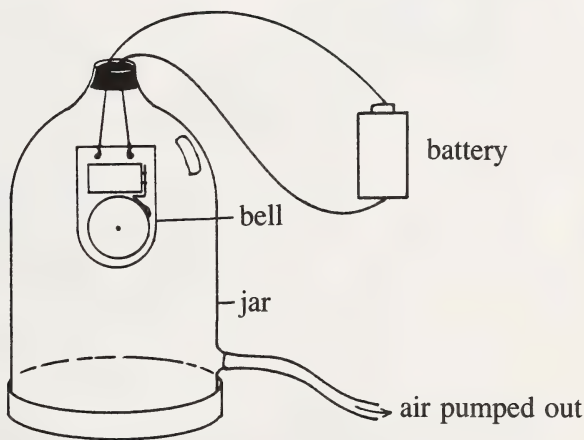
C.



D.



45. A tight metal lid on a jar of pickles may loosen when it has been held in hot water. This is because the hot water causes the
- A. glass jar to contract
 - B. metal lid to contract
 - C. glass jar to expand more than the metal lid expands
 - D. metal lid to expand more than the glass jar expands
46. Gary changes the chemical composition of a substance when he
- A. cuts paper
 - B. burns wood
 - C. freezes water
 - D. grinds hamburger
47. The bell in the diagram can be heard ringing until air is pumped out of the jar.



Why can the bell not be heard when the air is removed?

- A. The jar stops the sound.
- B. Sound gets pumped out of the jar.
- C. The electric circuit works only when there is air in the jar.
- D. Sound needs some material to travel through to reach the ear.

48. Which group contains decomposers only?
- A. Bees, molds
 - B. Coyotes, algae
 - C. Bacteria, fungi
 - D. Vultures, weeds
49. The number of deer in an area increased. Which of the following is the most probable reason for the increase?
- A. Deep snow cover
 - B. Moose moving into the area
 - C. Decrease in the wolf population
 - D. Forest being cleared for housing
50. Biologists counted the number of birds, rabbits, coyotes and grasshoppers in an area.

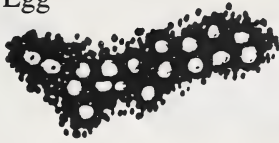
Type of Animal	Population
?	4
?	56
?	398
?	2,793

Which animal most probably has a population of 4?

- A. Bird
- B. Rabbit
- C. Coyote
- D. Grasshopper

51. Which stage of a butterfly's life cycle is best adapted for eating food and growing rapidly?

A. Egg



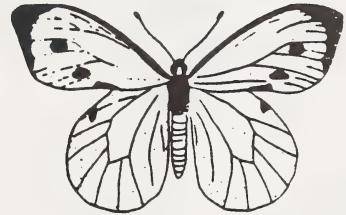
B. Larva



C. Pupa



D. Adult



52. Which of the following is a correct food chain?

- A.** Algae → fish → killer whale → seal
- B.** Algae → fish → seal → killer whale
- C.** Seal → fish → killer whale → algae
- D.** Seal → killer whale → fish → algae

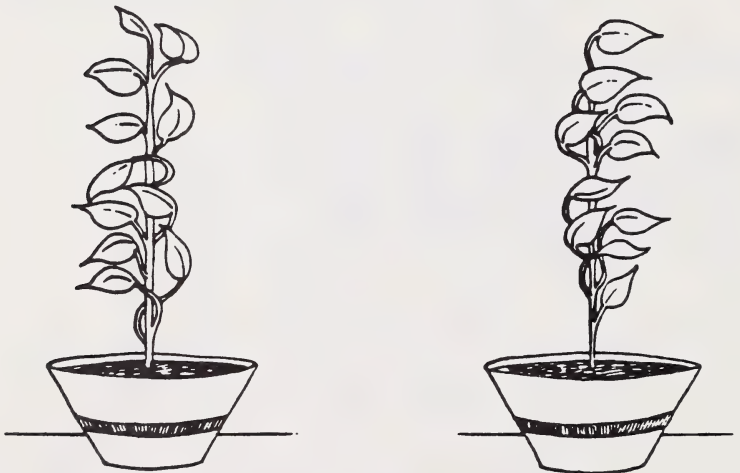
53. The picture shows the skulls of three animals.



Which of these skulls would belong to predators?

- A. 1 and 2
- B. 1 and 3
- C. 2 and 3
- D. 1, 2 and 3

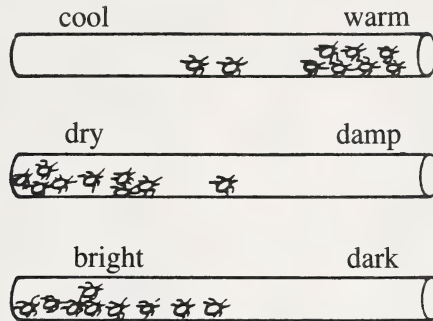
54.



The MOST LIKELY reason why the plants look different is that they were

- A. kept at different temperatures
- B. given different amounts of water
- C. given different amounts of fertilizer
- D. kept on different sides of the light source











55. Sally put insects in three tubes to test what kind of environment they prefer. The diagram shows the different environmental factors she tested and where the insects were after a period of time.



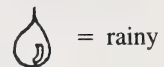
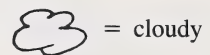
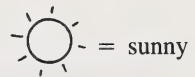
Which environment would these insects most likely prefer?

- A. Marsh
- B. Desert
- C. Northern forest
- D. Tropical jungle

56. The chart shows sky condition and wind direction for 10 days.

Day	Sky Condition	Wind Direction
1		north
2		south
3		south
4		east
5		east
6		north
7		west
8		north
9		south
10		?

Key

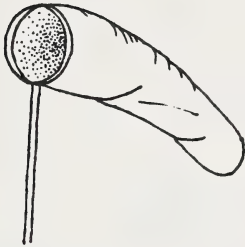


Based on the chart, the wind direction on day 10 would MOST LIKELY be

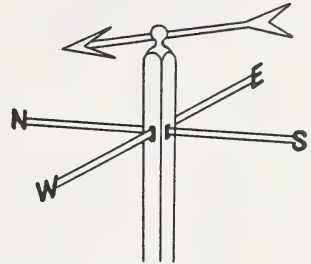
- A. east
- B. west
- C. south
- D. north

57. Which instrument is commonly used to measure the speed of wind?

A. Wind sock



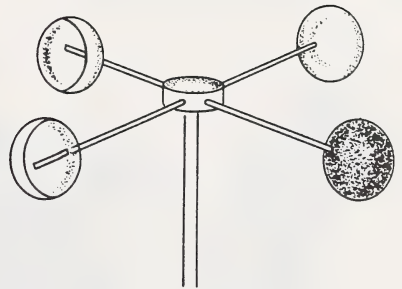
B. Weather vane



C. Weather balloon



D. Anemometer



58. Wind erosion is most likely to occur in a

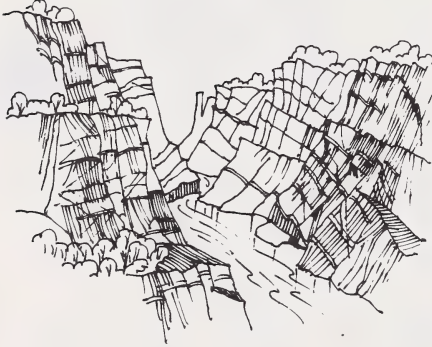
- A. pine forest
- B. plowed field
- C. grassy meadow
- D. vegetable garden

59. Which situation is an example of condensation?

- A. Dew drops disappear from a leaf.
- B. Susan feels cold when she gets out of the bathtub.
- C. Drops of water form on the outside of a cold glass.
- D. The water in a glass decreases in volume sitting on the counter.

60. In which picture is there evidence that water erosion has occurred over a long period of time?

A.



B.



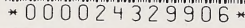
C.



D.



39937386 CURR HIST

[illegible]

